



P-ISSN: 2349-8528

E-ISSN: 2321-4902

IJCS 2018; 6(6): 1505-1506

© 2018 IJCS

Received: 21-09-2018

Accepted: 24-10-2018

**Anjali Jingar**

Ph.D. Scholar, Department of  
Agronomy, College of  
Agriculture, Agriculture  
University, Jodhpur, Rajasthan,  
India

## Investigating the effect of date of sowing on growth and yield of chia (*Salvia hispanica* L.)

**Anjali Jingar****Abstract**

A field study was conducted to determine the effect of different date of sowing on the growth and yield of chia (*Salvia hispanica* L.). Randomized complete block design with three replication. The experiment was conducted at Experimental farm, Agriculture Research Station, Mandor-Jodhpur (Agricultural University, Jodhpur) in the year 2016-17. There is four date of sowing viz., 25<sup>th</sup> October (D<sub>1</sub>), 05<sup>th</sup> November (D<sub>2</sub>), 15<sup>th</sup> November (D<sub>3</sub>) and 25<sup>th</sup> November (D<sub>4</sub>) in the experiment. The study revealed that the crop sown on 25<sup>th</sup> October gave highest plant height (77.42 cm), number of inflorescence per plant (49.47) and seed yield (685.44 kg per ha).

**Keywords:** chia, date of sowing, growth & yield parameters

**Introduction**

Chia (*Salvia hispanica* L.) is an annual plant belonging to the *Lamiaceae* family native to Mexico and Guatemala (Ixtaina *et al.*, 2008) [2]. Chia can grow up to 1 m tall and has opposite arranged leaves. *Salvia hispanica* produces white or purple flowers. It is reported that the chia seeds commercialized today were selected by Nahua botanists, but came into the twenty-first century as a mixed population. In pre-Columbian times, its seeds were one of the basic foods of Central American civilizations (Ayerza and Coates, 2005) [1]. It is cultivated in Argentina, Australia, Bolivia, Colombia, Guatemala, Mexico and Peru. Today, its cultivation is not only limited to America but is also extended to other areas such as Australia and Southeast Asia (Jamboonsri *et al.*, 2012) [3].

In India and in the State of Rajasthan, chia is an emerging innovative crop. Inclusion of chia crop in diversified Indian agricultural system provided not only a wider choice in the production of a variety of crops but also higher net returns per hectare of land. The exploitation of new crops and their genotypes has opened up new horizons in crop production. Hence, it becomes essential to study the influence of date of sowing on productivity of chia crop. In light of the above facts, as chia is new to this State particularly so in western Rajasthan.

**Materials and Methods**

The experiment was carried out on chia (*Salvia hispanica* L.) at Agricultural Research Station, Mandor-Jodhpur (Rajasthan). Geographically, Jodhpur is situated between 26° 15' N to 26° 45' North latitude and 73° 00' E to latitude 73° 29' East longitude at an altitude of 231 meter above mean sea level. The soil of experimental site is loamy sand in texture, slightly alkaline in reaction, poor in organic carbon (0.13%), low in available nitrogen (174 kg ha<sup>-1</sup>) and medium in phosphorus (22.2 kg ha<sup>-1</sup>) but high in available potassium (325 kg ha<sup>-1</sup>). The mean daily maximum and minimum temperature fluctuated between 21.8 to 39.8 °C and 8.8 to 22.8 °C, respectively during the crop growing season. The experiment was laid out in Randomized complete block design with three replications. There is four date of sowing viz., 25<sup>th</sup> October (D<sub>1</sub>), 05<sup>th</sup> November (D<sub>2</sub>), 15<sup>th</sup> November (D<sub>3</sub>) and 25<sup>th</sup> November (D<sub>4</sub>) in the experiment. The data on growth & Seed yield were recorded.

**Results and Discussion**

Data presented in the Table showed significant (at 1 % level of probability) effect of date of sowing on growth and yield of Chia. The plant height differed significantly due to date of sowing when crop was sown on 25<sup>th</sup> October, It produced significantly higher plant height

**Correspondence****Anjali Jingar**

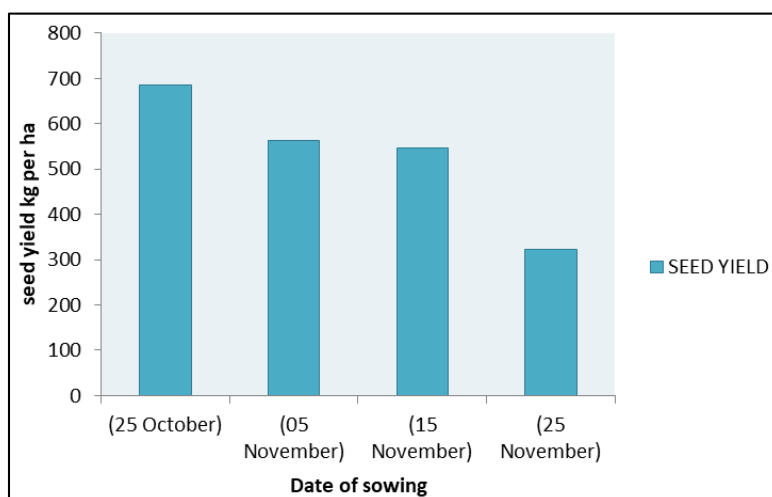
Ph.D. Scholar, Department of  
Agronomy, College of  
Agriculture, Agriculture  
University, Jodhpur, Rajasthan,  
India

(77.42 cm) which was significantly superior to later sowing on 5<sup>th</sup> November, 15<sup>th</sup> November, and 25<sup>th</sup> November. The variation in plant height of Chia was observed in present study due to different sowing time indicated that plant height

of Chia may be influenced by temperature or other environmental conditions. These results agree with the earlier finding of Karim *et al.* (2015) [4] and Sharma (2012) [5].

**Table 1:** Effect of date of sowing and plant geometry on plant height at 30, 60 and at harvest on chia

Treatment	Plant height (cm)	Number of inflorescence plant <sup>-1</sup>	Seed Yield per ha
D <sub>1</sub> (25 <sup>th</sup> October)	77.42	49.47	685.44
D <sub>2</sub> (05 <sup>th</sup> November)	60.66	42.73	564.06
D <sub>3</sub> (15 <sup>th</sup> November)	55.99	30.73	546.27
D <sub>4</sub> (25 <sup>th</sup> November)	46.22	32.13	323.05
SEm ±	3.3641	2.7380	21.3579
CD (P = 0.05)	3.6645	3.3060	9.2335



**Fig 1:** Effect of date of sowing on seed yield of chia

Data presented in Table revealed that the differences in number of inflorescence per plant were significant. At harvest, both first date of sowing i.e. 25<sup>th</sup> October recorded significantly higher number of inflorescence per plant i.e. 49.47. Progressive delayed sowing resulted in significant reduction in number of inflorescence per plant at all stages of observation. This may be due to higher taller plants in earlier sowing. On the contrary lower number of inflorescence was found in case of sowing on 25<sup>th</sup> November may be due to decreased favorable environmental conditions. These results are in agreement with Karim *et al.* (2015) [4].

In term of seed yield per hectare differ significantly among the varying date of sowing. Higher seed yield and husk yield was found in 25<sup>th</sup> October (685.44 kg per ha) sowing. The yield was decreased as sowing was delayed. Ayerza and Coates (2005) [1], who reported effect of environmental condition causing variation in chia yield. Karim *et al.* (2015) [4] also reported similar decrease in delayed sowing in seed yield per hectare of chia.

### Conclusion

Growth and yield was found maximum with D<sub>1</sub> (25<sup>th</sup> October sowing) which was significantly higher over rest of dates of sowing.

### References

1. Ayerza R, Coates W. Effect of ground chia seed and chia oil on plasma total cholesterol, LDL, HDL, triglyceride content, and fatty acid composition when fed to rats. *Nutrition Research*. 2005; 11:995-1003.
2. Ixtaina VY, Nolasco SM, Tomas MC. Physical properties of chia (*Salvia hispanica* L.) seeds. *Industrial Crops and Products*. 2008; 28(3):286-293.

3. Jamboonsri W, Phillips T, Geneve R, Cahill J, Hildebrand D. Extending the range of an ancient crop (*Salvia hispanica* L.) a new ω 3 source. *Genetic Resources and Crop Evolution*. 2012; 59:171-178.
4. Karim MM, Ashrafuzzaman M, Hossain MA. Effect of planting time on the growth and yield of chia (*Salvia hispanica* L.). *Asian Journal of Medical and Biological Research*. 2015; 1(3):502-507.
5. Sharma S. Effect of dates of transplanting on the growth and oil yield of *Mentha arvensis* L. *Scholarly Journal of Agricultural Science*. 2012; 2(7):130-132.